

CLAIMS

1. A die for manufacturing a core including: a ring-shaped supporting member that is formed by a plate-like member, that is disposed inside a pneumatic tire, and that supports the pneumatic tire by allowing an inner side of a tire tread portion to be brought into contact with an outer peripheral surface of the supporting member at the time of a deformation of the pneumatic tire due to a decrease of an internal pressure of the tire; and ring-shaped rubber portions that are respectively joined to both widthwise direction edge portions of the supporting member, the die comprising:

a ring-shaped core die that is brought into contact with the supporting member from radial inner side directions thereof to support the supporting member while maintaining a non-contact state with the both widthwise direction edge portions of the supporting member;

first and second transfer-molding dies that are disposed so as to hold the core die therebetween from the core die axial direction and form cavities between the first transfer-molding die and the core die as well as between the second transfer-molding die and the core die, the cavities being used for forming the rubber portions respectively at one edge portion and the other edge portion of the supporting member; and

a transfer part that injects a rubber material into runners that are respectively formed at the first and second transfer-molding dies and simultaneously transfers the rubber material into the cavities,

wherein the rubber material injected into the cavities is vulcanized and molded.

2. The die for manufacturing a core according to claim 1, wherein the dimensions of the respective runners of the first and second transfer-molding dies are the same.

3. The die for manufacturing a core according to claim 1 or 2, wherein the transfer part compresses pod portions that are provided for the respective runners and connected thereto, with the upper portions of the pod portions concaved for receiving the rubber material, and convex portions that are provided at the upper side to each of the pod portions to cause transfer of the rubber material by entering each of the pod portions.

4. The die for manufacturing a core according to any one of claims 1 to 3, wherein a heat source is provided at the first and at the second transfer-molding dies.

5. The die for manufacturing a core according to any one of claims 1 to 4, wherein, due to an application of a compression force in a widthwise direction to the supporting member, the width of the supporting member is made smaller in the closed state of the first and second transfer-molding dies than in the open state thereof.

6. A die for manufacturing a core including a ring-shaped supporting member that is formed by a plate-like member, that is disposed inside a pneumatic tire, and that supports the pneumatic tire by allowing an inner side

of a tire tread portion to be brought into contact with an outer peripheral surface of the supporting member at the time of a deformation of the pneumatic tire due to a decrease of an internal pressure of the tire; and ring-shaped rubber portions that are respectively joined to both widthwise direction edge portions of the supporting member, the die comprising:

a ring-shaped core die that is brought into contact with the supporting member from radial inner side directions thereof to support the supporting member while maintaining a non-contact state with the both widthwise direction edge portions of the supporting member;

a transfer-molding die and a compression-molding die that are disposed so as to hold the core die therebetween from the core die axial direction, and that form cavities between the transfer-molding die and the core die as well as between the compression-molding die and the core die, the cavities being used for forming the rubber portions respectively at one edge portion and at the other edge portion of the supporting member;

a transfer part that, at the same time when rubber material is compressed by the compression molding die, causes the rubber material to be injected into runners formed at the transfer-molding die and transferred into the cavities,

wherein the rubber material injected into the cavities are vulcanized and molded.

7. The die for manufacturing a core according to claim 6, wherein a heat source is provided at the transfer-molding die and at the compression-molding die.

8. The die for manufacturing a core according to claim 6 or 7, wherein, due to an application of a compression force in a widthwise direction to the supporting member, the width of the supporting member is made smaller in the closed state of the transfer-molding die and the compression-molding die than in the open state thereof.

9. The die for manufacturing a core according to any one of claims 1 to 8, wherein the diameter of the core die can be increased and decreased.

10. A method for manufacturing a core including a ring-shaped supporting member that is formed by a plate-like member, that is disposed inside a pneumatic tire, and that supports the pneumatic tire by allowing an inner side of a tire tread portion to be brought into contact with an outer peripheral surface of the supporting member at the time of a deformation of the pneumatic tire due to a decrease of an internal pressure of the tire; and ring-shaped rubber portions that are respectively joined to both widthwise direction edge portions of the supporting member, the method comprising:

setting the supporting member in a die; and

vulcanizing and molding by compression-molding from the side of one widthwise edge portion of the supporting member and at the same time, transfer molding from the side of the other widthwise edge portion thereof.

11. The method according to claim 10, wherein
when setting, the supporting member is set horizontal in the die, and

when vulcanizing and molding, the side from which compression-molding is carried out on the one widthwise edge portion of the supporting member is the upper side thereof.